

## 8.1-8.4 Test Review

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

**Use identities to simplify each expression.**

1.  $\frac{\tan x \csc x}{\sec x}$

2.  $\tan^2 x - \frac{\sin(-x)}{\sin x}$

3.  $\csc x \tan x + \sec(-x)$

4.  $(1 - \csc x)(1 - \csc(-x))$

**Multiply and simplify:**

5.  $\sin \theta \cos \theta (\tan \theta + \cot \theta)$

**Factor and simplify:**

6.  $\cos^2 x \tan^2 x + \cos^2 x$

## 8.1-8.4 Test Review

Verify each identity:

$$7. \frac{\sin x \cos x}{\tan x} = 1 - \sin^2 x$$

$$8. \cot(-x) = \frac{1 - \sin^2 x}{\cos(-x) \sin(-x)}$$

$$9. \frac{\sin 2\beta}{2 \csc \beta} = \sin^2 \beta \cos \beta$$

$$10. \frac{1}{\sec \theta - 1} - \frac{1}{\sec \theta + 1} = 2 \cot^2 \theta$$

$$11. \cos(3x) = \cos x(1 - 4 \sin^2 x)$$

$$12. \sin^2\left(\frac{x}{2}\right) = \frac{\csc^2 x - \cot^2 x}{2 \csc^2 x + 2 \csc x \cot x}$$

## 8.1-8.4 Test Review

13. Use trigonometric identities to find the values of the other five trigonometric functions if  $\cos \alpha = 1/\sqrt{5}$  and  $\alpha$  is in quadrant IV.

**Find the exact value by using a sum or difference identity:**

14.  $\cos\left(\frac{7\pi}{12}\right)$

15.  $\sin\left(\frac{\pi}{12}\right)$

16.  $\tan 165^\circ$

17.  $\cos(75^\circ)$

**Use the sum/difference identities to simplify each expression.**

18.  $\cos 75^\circ \cos 60^\circ - \sin 75^\circ \sin 60^\circ$

19.  $\sin 80^\circ \cos 50^\circ - \cos 80^\circ \sin 50^\circ$

## 8.1-8.4 Test Review

20. Find  $\sin(A+B)$  if  $\sin A = -5/13$  and  $\cos B = 2/5$ , with  $A$  in quadrant III and  $B$  in quadrant I.

21. Find  $\cos(\alpha - \beta)$  if  $\sin \alpha = 15/17$  and  $\sin(\beta) = -1/3$ , with  $\alpha$  in quadrant II and  $\beta$  in quadrant IV.

**Find the exact value by using a half-angle identity.**

22.  $\sin\left(-\frac{\pi}{8}\right)$

23.  $\tan\left(\frac{3\pi}{8}\right)$

**Use the given information to find the exact value of the trigonometric function.**

24. Find  $\cos\left(\frac{\alpha}{2}\right)$  if  $\cos \alpha = \frac{1}{4}$ , and  $\alpha$  is in quadrant IV.

25. Find  $\sin 2\theta$  if  $\sin \theta = \frac{5}{13}$ , and  $\theta$  is in quadrant II.